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A Field Trial of M 42 (DDT) Dip in the Control of Sheep Myiasis *

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INTRODUCTION

In this country there is some published evidence that DDT is of considerable value in the control of sheep blowfly (Cragg, 1945; Harbour and Watt, 1945; Cragg, 1946; Hughes, Jenkins and Jones, 1946; Cragg, 1947, and Hughes *et al.*, 1947). Hughes *et al.* (1946) state that arsenic when used alone or in combination with crutching to reduce faecal contamination in the region of the tail has not proved satisfactory because the period of protection it gives is too short to be of value. In discussing their results (1945) they state that the general impression may be gained that DDT and 666 are not of much greater value than arsenic but that the figures for strike in the control sheep are lower than normally experienced and that some factor has apparently reduced strike below the normal range expected. They suggest as possible factors that the presence of DDT-dipped sheep may have prevented *L. sericata* from striking the controls or that DDT may have been transferred to the controls by contact. The same reasons are suggested for the relatively long mean time of striking in the control groups and they also suggest that DDT will not protect lambs which are scouring but they give very few figures for comparison. Cragg (1947) states that in the Agricultural Research Council trials the sheep available on each farm were divided into approximately equal groups and the experiment lasted six weeks. In this experiment the incidence of blowfly strikes in the commercial dip controls was 3 per cent. and in the DDT group 1 per cent. Cragg states that at most centres records were kept of the positions at which strikes were found. Of 115 strikes on the controls, 98 occurred on the tail region, with 27 out of 30 as the corresponding figures for the DDT-dipped sheep. In other words, 86 per cent. of the strikes where position was recorded was due to faecal contamination in the tail region. In the discussion it is stated that the most noteworthy feature is the very low incidence of strike recorded in 1945, but that from the results it is evident that DDT saved approximately two-thirds of the sheep that would otherwise have been struck (*i.e.*, 66 sheep out of 5,600 sheep). Cragg, like Hughes *et al.*, suggests that it is not certain whether the low incidence of myiasis on the experimental farms was due entirely to unfavourable season, location and good hygiene or whether the fact that controls and DDT sheep were grazing together significantly altered the total incidence of strike. Whether this effect is small or large Cragg considers that it must be taken into consideration in future trials despite the practical difficulty of selecting pastures of equal "probable strike incidence." In the papers both of Hughes *et al.* (1946) and of Cragg (1947) it is noted that strike was reputed to be much greater on adjacent farms than on the experimental ones. Hughes *et al.* (1947) during the summer of 1946 carried out a field trial to assess the relative values of DDT and benzene hexachloride, using arsenic as a control dip. They obtained results which they claim show DDT as the most efficient dip tested. Again it is shown that scouring plays a significant part in blow-fly control and they state that insecticidal treatment is unlikely to give effective control unless it is supplemented by crutching to minimise soiling of the breech; out of a total of 152 strikes, 104, or 69 per cent., were breech strikes. The effect applies to the degree as well as the duration of protection. These authors, contrary to Cragg (1947), consider that their results show DDT dipping to be of economic value. It is again suggested that the presence of DDT-dipped sheep influences the fly population, depressing the strike figures in the control sheep.

METHODS

The present experiment was designed in order to overcome the possible influence of DDT-dipped sheep upon the blowfly population of an area, which it has been suggested affected the number of strikes in arsenical-dipped control sheep in previous experiments. In this experiment an endeavour was made to select groups of neighbouring farms with equal "probable strike incidence." Altogether four groups were chosen; one in Roxburghshire comprising two large arable farms (Group III—1,480 sheep); one in Clackmannanshire, comprising three arable farms (Group I—1,820 sheep); one in Forfar comprising three feeding farms (Group II—417 sheep); and one in Perthshire comprising two large hill farms (Group IV—3,000 sheep). In each group the sheep on one farm were dipped in M 42 giving a bath concentration of 0·5 per cent. DDT, immersion time 30 seconds. The sheep from the other farm or farms were dipped in a commercial arsenical dip. All experiments lasted six weeks, the sheep in each group being dipped on the same day or the following days. The time of dipping the various groups, however, varied between the beginning of July and August. The actual recording of blowfly strikes was made by the shepherds who recorded the date of strike, whether on lamb or ewe, position of strike, whether on clean or dirty wool and the intensity of strike.

The DDT dip was easy and pleasant to use and showed no evidence of breakdown of emulsion.

RESULTS

In Group IV over 3,000 sheep were dipped in DDT and arsenic but the experiment was completely nullified in that the arsenical-dipped sheep were re-dipped after a three weeks interval. No reason could be ascertained except that it was general practice to do this. Up to the date of re-dipping myiasis was negligible in both groups.

In Groups I, II and III 161 strikes occurred n 3,717 sheep. Of these, 84 per cent. occurred on lambs and 16 per cent. on ewes. Of the 136 strikes on lambs 121, or 89 per cent., occurred on the tail region of scouring animals while of the 25 strikes on the ewes, nine, or 36 per cent., occurred on dirty tails. Comparison of the arsenic with the DDT-dipped sheep in each group shows that in Groups II and III DDT gives a small but significantly greater protection than does arsenic for clean sheep providing the experiment is in fact dealing with groups of farms of equal strike incidence. Thus in Group II 1·3 per cent. of clean sheep dipped in DDT are struck compared with 4·3 per cent. of clean sheep dipped in arsenic, while in Group III equivalent figures are 0·0 per cent. and 2·0 per cent. The duration of protection is 41 to 30·6 days in Group II and 42 to 38 days in Group III. Group I does not show a similar advantage of DDT over arsenic: 0·6 per cent. clean sheep dipped in DDT against 0·1 per cent. dipped in arsenic. Consideration of the strikes occurring on dirty sheep (73 per cent. of all strikes) shows that no assessment of the relative protective values of DDT and arsenic can be made, since it is obvious that the degree of faecal contamination is an uncontrolled variable from farm to farm, so making the results obtained of no comparable value. Group III (7·5 per cent. dirty strike in DDT group), however, shows very clearly that DDT will not give even useful protection to lambs which are scouring and it is therefore unlikely to give effective control unless the scouring factor is also controlled.

DISCUSSION

The present results and the results of previously published work show that the question of faecal contamination or scour is of the greatest importance in the control of sheep blowfly. In our experiments the percentage of strikes occurring on dirty sheep was 73 per cent. of the total, so that here the majority of strikes cannot be used in the assessment of the relative efficiency of DDT and arsenic, since the degree of scouring probably varies considerably from farm to farm in each group of farms. In other words, the DDT-dipped groups of sheep probably differ considerably from the arsenic-dipped groups in a character which is relevant to the issues to be determined. Further, in experiments such as the present series it is probably not feasible to determine this variation from farm to farm, nor is it possible to measure the varying degrees of attractiveness to the blowfly population of scour. It would appear, therefore, that the present type of experiment is not of great value for determining the efficiency of DDT.

Similar objection can be taken to previously published results of experiments, since in these, 77 per cent. of all recorded strikes occurred on dirty sheep. In these experiments the sheep on individual farms were divided into two or more groups but no indication is given in the text that true random sampling was carried out or that the grazing of the two samples was identical in every way, an important feature for the presence or absence of scouring. Even if these difficul-

* This work was carried out under the direction of the Sheep Dips Sub-Committee of the Scottish Hill Farm Research Committee.

ties had been met the number of sheep (especially lambs) on each farm was relatively small, so that it is quite likely that random allocation would not necessarily have equalised the groups regarding the factor of scour. In any case no successful attempt could be made to verify if equality of scour did occur and if our suggestion is correct this is probably impracticable. It seems necessary that in all future experiments the results must be deliberately sorted regarding scour and the experiments be carefully planned to this end. It is doubtful whether this can be done in field experiments of the type under discussion.

Further consideration of previous results raises other doubts regarding the validity of the claims. For instance, in the work of Hughes *et al.* (1946) the figures for percentage struck are derived from the summated totals of strikes for each group, notwithstanding the very important fact that both the sheep populations at risk and the fly populations may have varied considerably from farm to farm and from control groups to DDT groups. In fact on one farm, where by far the largest number of strikes occurred, there were no sheep dipped in either arsenic or gammexane. Results obtained from such summations may be quite misleading. The authors would, however, have been justified in comparing the results on each farm separately, if the question of scour be ignored. Had this been done using the " fourfold " table of the Chi Square test and the additive characteristic of χ^2 in doubtful cases, the following results would have been obtained.

Significant Differences

Hughes et al., 1946

Farm No. 1.—DDT ——→ Nothing
Gammexane ——→ Nothing
Arsenic ——→ Nothing
Farm No. 2.—DDT ——→ Nothing
No arsenic used
Farm No. 3.—DDT ——→ Nothing
No arsenic used
Farm No. 4.—DDT ——→ Arsenic
(DDT is not better than nothing)
Nothing ——→ Arsenic
Farm No. 5.—Negative
Farm No. 6.—Negative
Farm No. 7.—Negative.

(——→ = better than)

The analysis indicates that DDT, gammexane or arsenic may be better than nothing. There is, however, no evidence that DDT is better than arsenic except on Farm No. 4, but the evidence from this farm is confusing since the figures given show that undipped sheep are better protected than those dipped in arsenic, and that DDT gives no greater protection than leaving sheep undipped.

Thus the results of Hughes, Jenkins and Jones are certainly not conclusive that DDT is a better dip than gammexane or arsenic.

Some of these criticisms also apply to the results of Cragg (1946); there is no justification for assuming equal division of scouring sheep nor for the summation of totals of strikes. If, however, one ignores the question of scouring and uses the Chi Square test regarding significance on individual farms, one finds that the results on nine of the 38 farms, five of these being definitely significant, indicate that DDT is a better dip than arsenic. On 25 farms there was a suggestion that DDT was the better dip, but individual farm results were not significant. If on these farms, however, χ^2 is summated the results do show a significant difference between DDT and arsenic.

The work of Hughes, Pollard, Field & Jones (1947) again ignores the question of unequal division of scouring sheep but their results taken at their face value show that DDT is a better dip than arsenic on four out of eight farms, but that gammexane is of no greater value than arsenic.

It will be seen that consideration has been given only to strike incidence and that the question of duration of protection has not been discussed. This is because evidence published was insufficient to support statistical analysis of the results quoted, and because scour must play a major part in this question. It is possible that control of scour in lambs might even be a better preventative of strike than dipping.

Conclusion

The present experiment was unsatisfactory owing to the interference of scouring sheep, an uncontrolled variable. This factor must be considered in all future experiments. DDT appeared to have some advantage over arsenic on clean sheep, but it is certain that DDT is not capable of efficient protection of dirty sheep.

Previous experimental evidence is not convincing since scour, which played a major part in the results, was not assessed. Random division is not sufficient since the number of sheep used was relatively small on each farm. It is difficult to know how to overcome this disturbing factor in field experiments.

Many of the previously published conclusions are based upon summation of the number of strikes from several farms. This is not justified, since both numbers of sheep and strike incidence vary and in such circumstances summation could lead to erroneous conclusions.

Our conclusion is that convincing experimental evidence of the greater efficiency of DDT compared with arsenic as an antiblowfly dip has still to be obtained. The evidence so far is far from convincing, the most that can be said being that, in the absence of scouring, it appears to have a slight advantage.

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The Diagnosis of Johne's Disease of Cattle by Microscopical and Cultural Examination of Faeces *

By

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In the differential diagnosis of Johne's disease, the microscopical examination of the faeces is used as a direct means of showing the presence of the causal organism. On smears stained by the Ziehl-Neelsen technique, the latter is characterised by its special morphology, its marked acid- and alcohol-fastness and its peculiar arrangement in clumps. Other species of the genus Mycobacterium, especially some saprophytic acid-fast bacilli which may sometimes normally find their way to the faeces through the digestive tract with food or water, resemble *Mycobacterium johnei* very closely. It is believed, however, that they are rarely, if ever, arranged in close clumps or nests.

The value of the microscopical examination of faeces is limited by the fact that in many confirmed cases of Johne's disease, smears show only very few acid-fast bacilli or no bacilli at all even on examination of samples taken at intervals from the same animal. The results have not proved more satisfactory even when various concentration procedures have been adopted (Houthuis, 1932; Cauchemez & Sergent, 1934), and this has also been the author's experience. It was therefore thought advisable to attempt the cultivation of Johne's bacilli from faeces of animals clinically suspected of Johne's disease and to compare the results obtained with those of the microscopical examination.

Technique

Samples of dung received through veterinary practitioners from suspected bovines were examined in the following way: with a boiled knife a small amount of faeces and any mucus shreds that were visible were smeared thickly on new slides previously cleaned with the bichromate-sulphuric acid solution or alcohol. In some instances the faeces were first deprived of coarse debris by filtration or fractional centrifugation. After staining, each smear was searched for acid-fast bacilli resembling *Mycobacterium johnei*. The findings were recorded as negative, suspicious or positive, according to whether no typical bacilli, isolated typical bacilli, or clumps of typical bacilli or granules had been demonstrated. By " typical " is meant the relatively thin rod (rather pleomorphic) remaining stained bright red after action of the decoloriser (3 per cent. hydrochloric acid in alcohol applied for five to ten minutes).

For cultural purposes amounts of 0·5 to 1 g. of faeces were suspended in about 10 ml. of sterile distilled water and the mixture well shaken by hand. After sedimenting on the bench for about ten minutes, 1·6 to 1·8 ml. volume of the supernatant were transferred into rubber stoppered sterile test tubes and treated with antiformin (available chlorine about 5·25 per cent.) to final concentrations of 10, and/or 15, and/or 20 per cent.

The antiformin was left to act at room temperature for 20 to 30 minutes during which the mixtures were shaken at intervals and were afterwards diluted to about 12 ml. and centrifuged at 2,000 r.p.m. for 15 minutes. The supernatant was discarded and the deposit in a few drops of saline or distilled water sown on to six fresh slopes of Dunkin's egg plus liver extract plus glycerinated extract of *Mycobact. phlei* (Minett, 1942). An effort was made to keep the concentration of antiformin to the lowest titre that would destroy all contamin-

* The data reported in this paper were incorporated in a thesis for the Ph.D. degree of the University of London.

ants. Various modifications, such as increasing the amount of faecal suspension treated or using the top of the centrifugal deposit of a large volume of suspension, have not proved superior. Selective agents other than antiformin, *e.g.*, sulphuric and oxalic acids, sodium and potassium hydroxide, were also used but with relatively little success.

Results and Discussion

Table I summarises the results obtained on 91 faecal samples.

Table I

Correlation between Microscopical and Cultural Results in the Examination of Faeces for Johne's Bacilli

No. of samples	Microscopical findings	Cultural findings: Johne's bacilli recovered	Johne's bacilli not recovered	Cultures contaminated
35	Positive; acid-fast in clumps	From 29	3	3
33	Suspicious; isolated acid-fast only	From 16	13	4
23	Negative; no acid-fast bacilli seen	From 12	8	3
Total 91		57	24	10

It is satisfactory that the great majority of microscopically positive samples proved also positive on culture. Moreover, a certain proportion of samples which on smear examination would not have justified a definite opinion, were seen by cultural tests to contain the specific organism. In fact, no less than 28 out of 56 such samples (microscopically "suspicious" or "negative") yielded strains of *Mycobacterium johnei*. Colonies of the latter, visible to the naked eye, could easily be detected on the standard Dunkin's egg medium within four to six weeks of incubation at 38° C. provided the liver extract used in making up the medium was of good quality. Exceptionally, it took two to four months for colonies to appear. In some cases, contaminants—especially sporulating bacilli and moulds—did not allow readings to be made, but the addition of gentian violet 1 : 10,000 to the egg medium before inspissation reduced these failures very markedly. Some species of saprophytic Mycobacteria also resisted the action of antiformin, but their colonies were larger than those of *Mycobacterium johnei* and often pigmented. They were further distinguished by their marked pleomorphism on smears and by their ability to grow more rapidly even on simple media such as plain or glycerinated agar or egg.

In the past, sporadic attempts appear to have been made to culture Johne's bacilli from the faeces of cattle. Hagan (1928) reported that it is possible to treat the faeces with antiformin and recover the specific organism. He found the method time-consuming and uncertain, and could not recommend it as a routine procedure. As a herd test that is so, but our experience, based on the examination of 91 samples of cows' faeces and of several hundreds of goats' faeces (Levi, 1948), suggests that cultural tests may be useful at least in selected cases as a means of confirming the presence of Johne's bacilli when that cannot be done otherwise in a suspected animal from farms hitherto supposed to be free of Johne's disease, or of studying the bacillary excretion in the experimental or natural condition.

The objection that a positive cultural finding may not necessarily indicate active infection but only accidental bacillary transit through the intestinal tract, cannot be overlooked. It is believed, however, through experience obtained with goats, that this possibility of error is negligible since repeated attempts to isolate the specific bacillus from the faeces of normal goats in contact with infected animals on very heavily infected grounds were consistently unsuccessful.

The microscopical examination of faecal samples is a more practical diagnosis procedure than the cultural test. But it is also more unreliable in that it yields many false negative results (see Table I).

The author's experience suggests, moreover, that—in very rare cases, it is true—a positive microscopical diagnosis may turn out to be caused by saprophytic acid-fast bacilli. Caution is therefore necessary in interpreting not only a negative microscopical finding but also a positive one. In contrast, the isolation by culture of Johne's bacilli does not suffer from these limitations to the same extent.

A further point brought out by our results is that the microscopical finding of isolated acid-fast bacilli in a sample of faeces should not be interpreted as an indication of the presence of Johne's disease.

Summary and Conclusions

1. A method of culturing *Mycobacterium johnei* from faeces, using antiformin, is described.

2. Ninety-one samples from clinically suspicious cattle were cultured and the results were compared with those btained by microscopical examination of direct smears.

3. The limitations of both the microscopical and cultural techniques are discussed.

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Liability for Animals *

By

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Liability for animals is an interesting branch of tortious liability which cannot be fully comprehended unless regard is paid to its historical development. The broad principle is that the owner of an animal is responsible for damage which that animal does to another's person or property. This is an over-simplification as responsibility for animals falls under four heads: (1) Trespass; (2) liability for dangerous things; (3) negligence; and (4) nuisance.

The responsibility is that of the owner, but this is subject to the qualification that it is primarily the person who has possession or control who is responsible. In most cases this will be the owner. In the case of *North v. Wood* (1914 1 K.B. 629, the occupier of premises was held not liable for damage done by a dog kept on the premises which was cared for by the occupier's daughter who had, it was found, possession and control of the animal.

Trespass

Cattle trespass is one of the oldest grounds of liability in our law. The owner of animals must ensure that they do not stray on to his neighbour's land. If they do so the owner is liable for the trespass and the ordinary consequences which follow. Liability under this head is quite independent of negligence and is a form of absolute liability which the law imposes upon "the owner of an animal in which by law the right of property can exist."—*Cox v. Burbidge* (1863) 13 C.B. (N.S.) 430. The case of *Ellis v. Loftus Iron Company* (1874) L.R.10 C.P.10 provides an illustration of this branch of liability. The defendant's stallion put its head over the plaintiff's fence—a trespass—and bit and kicked the plaintiff's mare. The defendant was held liable for the damage, which was held not to be too remote. If the two horses had been lawfully in the same field there would have been no trespass and therefore no liability.—*Manton v. Brocklebank* (1923) 2 K.B. 212.

If the trespass occurs whilst cattle are being driven along the highway there is no liability in the absence of negligence. In *Tillett v. Ward* (1882) 10 Q.B.D., an ox which was being driven along a street, with all due care, entered a shop where it did extensive damage and defied all attempts to remove it for three quarters of an hour. It was held that the defendant was not liable.

If an owner is liable for cattle trespass it follows that he is obliged to take reasonable steps to prevent such trespass by fencing those portions of his land which adjoin his neighbour's land. In some cases an owner is obliged by prescription or by an Inclosure Act to fence animals "out." What if animals stray on to the highway? There is no duty to fence land adjoining a highway and the authorities establish that there is no duty to prevent harmless animals from straying on the highway. The whole question was exhaustively considered by Viscount Maugham in *Searle v. Wallbank* (1947) 1 A.E.R. 12, the facts of which were that the appellant was cycling down a lane when he collided with the respondent's horse which had apparently escaped from its field. The appellant was badly injured as a result of the accident. The House of Lords held that the owner was not liable in negligence because (1) there was no *prima facie* legal obligation on him, as the owner of a field adjoining the highway, to users of the highway so to maintain his fence as to prevent his animals from straying on to the highway, and (2) he was under no duty to the highway users to take reasonable care to prevent any of his harmless animals from straying on to the highway. Prior to this case the leading authority was *Heath's Garage Ltd. v. Hodges* (1916) 2 K.B. 370, the facts of which were as follows. The plaintiff's cab was being

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driven along the highway at a moderate speed when a flock of unattended sheep was encountered. One of the sheep collided with the cab which was overturned and damaged to the extent of £100. After considering the authorities the Master of the Rolls held that there was no obligation on the owner to prevent his sheep straying on to the highway. This case was followed in *Hughes v. Williams* (1943) K.B. 574, which case concerned a collision between a car and two horses.

There is no liability for trespass by cats and dogs. Thus the owner of a cat is not liable if it trespasses on his neighbour's land and devours one of his pigeons—*Buckle v. Holmes* (1926) 2 K.B. 128. Holt C. J. advanced the view in *Mason v. Keeling* (1699) 12 Mod. 335 that the reason for this principle of law was that trespass by such animals is "not likely to do substantial damage." This seems open to question. The unfairness of the rule was mitigated by the Dogs Act, 1906, which provides that "the owner of a dog shall be liable in damages for injury done to any cattle by that dog; and it shall not be necessary for the person seeking such damages to show a previous mischievous propensity in the dog, or the owner's knowledge of such propensity, or to show that the injury was attributable to neglect on the part of the owner." Section 7 states that "cattle" includes horses, mules, asses, sheep, goats and swine. The Dogs (Amendment) Act, 1928, added poultry to this list.

Liability for Dangerous Things

The general rule concerning liability for dangerous things (our second head of liability) has been expressed thus: "If a person brings or accumulates on his land anything which, if it should escape, may cause damage to his neighbour, he does so at his peril. If it does escape and cause damage, he is responsible. . . ." *Rylands v. Fletcher* (1868) L.R. 3 H.L. 330.

A dangerous animal is kept at the owner's peril. "It is not unlawful or wrongful to keep such an animal; the wrong is in allowing it to escape from the keeper's control with the result that it does damage," per Lord Wright in *Knott v. L.C.C.* (1934) 1 K.B. at page 138. The leading case is *May v. Burdett* (1846) 9 Q.B. 101. The plaintiff had been bitten by the defendant's monkey and, judgment having been given in the plaintiff's favour, the defendant appealed on the grounds that it had not been alleged that he had been negligent. Lord Denman C.J. said: "a person keeping a mischievous animal with knowledge of its propensities is bound to keep it secure at his peril; and that if it does mischief, negligence is presumed without express averment." In *Filburn v. People's Palace, etc., Company* (1890) 25 Q.B.D. 258, the defendants were held liable for damage done by an elephant which was not known to be dangerous. Knowledge or lack of knowledge of the mischievous propensities of animals *ferae naturae* is immaterial because liability for dangerous animals is "absolute."

The application of the principle differs in the case of those animals which from experience are not dangerous, such as goats, sheep, dogs and other domestic animals. Whereas an owner of a dangerous animal is presumed to know the propensities of its class, the owner of a domestic animal is liable at Common Law only if he knew of the mischievous propensity of the animal. There are two requirements: (1) The animal must have shown a mischievous propensity to do the act alleged; and (2) it must be established that the owner knew of this propensity. This requirement is termed the "scienter."

There is no liability if the animal does damage in following a natural propensity as, for example, where a cat attacks pigeons, which is a natural thing for a cat to do.—*Buckle v. Holmes* (*supra*). It is not natural for horses to kick human beings, but if the owner of a horse knows that his animal has a propensity to kick human beings he will be liable if it does so. It is not sufficient that the horse has shown a tendency to kick other horses. It must be established that the horse has shown a tendency to do the act alleged and that the owner was aware of this tendency.

It is a question of law as to whether an animal is ferocious by nature (*ferae naturae*) or harmless by nature (*mansuetae naturae*). Whereas an elephant belongs to the former class it has been held that a bull and a camel belong to the latter class.

There is a popular theory that every dog is allowed one bite. This theory arises from the fact that the owner of a dog is not liable (in the absence of negligence) if his dog attacks a person unless it can be established that the dog had a propensity to bite human beings and that the owner had knowledge of this propensity—that is scienter. If, however, the dog has already bitten a person and the owner is aware of this, he cannot be heard to say that he thought the dog harmless. Under the Dogs Acts, 1908-28, an owner is rendered liable if his dog destroys poultry. Proof of scienter is not required.

It has been held that a servant's knowledge of an animal's ferocity is imputed to the master whether communicated to him or not.—*Baldwin v. Casella* (1872) L.R. 7 Ex. 325. The servant's knowledge must be acquired in the course of his employment and on behalf of his master. In *Knott v. L.C.C.* (1934) 1 K.B. 126, a school caretaker kept a ferocious dog for his own use. It was not used for the protection of the school and in these circumstances it was held that the employers were not liable because they were not in possession or control of the dog and that, in any event, the caretaker's knowledge of the dog's ferocity could not be imputed to them.

Negligence

Liability for negligence in the control of animals is based upon the doctrine which was first formulated in the case of *Donoghue v. Stevenson* (1932) A.C. 599. For an action of negligence to be maintainable it is necessary that the parties should stand in such a relation that one owes the other a duty and occasions that other an injury by failure to discharge that duty. The plaintiff must establish that the defendant: (1) owed him a duty to take care; (2) failed to take reasonable care; and (3) occasioned the plaintiff injury in consequence.

It follows that the defendant has an effective defence if he can establish that he was under no duty to take care or that the damage was too remote. It was held in *Brackenborough v. Spalding U.D.C.* (1942) A.C. 310 that the proprietors of a market owed no duty to the users of the market, and still less to members of the public on the highway, to provide pens from which the animals could not escape. There is, however, a duty to take care when tethering a pony in a strange stable situated in a town because there is every likelihood that if the pony breaks loose it will endeavour to make its way home and in so doing it will endanger the lives of persons who happen to be in its path.—*Deen v. Davies* (1935) 2 K.B. 282. In *Lynch v. Nurdin* (1841) 1 Q.B. 29, the facts were that the defendant left a horse and cart unattended in a London street where children were accustomed to play. Some small boys climbed on the cart, the horse moved forward and the plaintiff fell and was injured. It was held that the defendant was negligent. Tindal C.J. stated that "if a man chooses to leave a cart standing in the street, he must take the risk of any mischief that may be done." On the other hand, the Court of Appeal held in *Aldham v. United Dairies (London) Ltd.* (1940) 1 K.B. 507 that it was not negligent to leave a pony and cart unattended on the highway. It would be negligent, however, knowingly to leave a spirited pony unattended. The question of negligence is one of fact and will depend upon all the circumstances of the case. Whereas it may not be negligent to leave a horse unattended on a bridle path, it would almost certainly be negligent to leave the animal unattended in a main street.

It should be remembered that the degree of care which must be exercised in relation to children is higher than in the case of adults. Children must be protected from things which constitute an allurement.

Nuisance

The fourth and final head of liability is that of nuisance, which may be distinguished from negligence in that nuisance is an act or omission causing injury which gives rise to an action for damages, while want of care must be established in an action for negligence. Nuisance may be public or private. If the comfort or convenience of the general public is affected, it is a public nuisance. If one or two persons only are affected, it is a private nuisance. A private person cannot bring an action in respect of a public nuisance except with the Attorney-General's permission, unless the nuisance also affects a private right of his own or he suffers damage substantially greater than that suffered by the public at large. In a well-known case the plaintiff had a shop in a narrow street. The defendants were in the habit of unloading and loading their goods from a wagon standing in the street outside the plaintiff's shop thereby obstructing the plaintiff's customers and diminishing the light reaching the shop. The smells from the horses added to the inconvenience. It was held that the plaintiff had suffered particular, direct and substantial damage and could maintain an action for damages.—*Benjamin v. Storr* (1874) L.R. 9 C.P. 400. A nuisance may be committed by permitting a large number of animals to stray upon the highway but there is no strong authority to support this. On the contrary, the Master of the Rolls, in the case of *Higgins v. Searle* (1909) 100 L.T. 280, expressed the view that there was no duty to prevent harmless animals like sheep from straying on the highway and that it was immaterial whether the action was sought to be based on negligence or nuisance.

It will be seen that there are a number of anomalies in the law relating to animals. The complexity of this branch of liability arises from the fact that an action may lie against the owner of

THE VETERINARY RECORD

July 10, 1948

OUR DIAMOND JUBILEE

As participants in events the swift, sombre passage of which has changed the face and outlook of the world and brought it to the verge of starvation, our readers may realise with a sense of surprise, on receipt of this issue, that a decade has passed since we celebrated our Golden Jubilee. Our commemorative number of July 16th, 1938, reveals no misgivings that what, despite the effects of World War I, we now recognise as a relatively prosperous era was approaching its end, or premonition of the imminence of a perilous period in our island story when mere survival would represent a measure of success on the part of its institutions, including its well-established periodicals. Strong emphasis has indeed been laid by catastrophe on that element of endurance which characterises most clearly the celebrant of a Diamond Jubilee.

On this occasion we have perforce to take our honours modestly. Our major handicap, almost throughout the intervening period, has been restriction of paper supplies, save for an occasional welcome concession, to one-third of our pre-war consumption; our major concern the indefinite continuance of this situation which clouds all consideration of future policy. At the same time, the setting up of a committee to introduce improvements in our publication is at once an acknowledgment of shortcomings, some of which may prove remediable at short term, and a pledge of a determination to develop on right lines when, at long last, opportunity is offered. The prospects at the moment are dim and we would take this, to us, momentous occasion to say that while freedom of information is indeed the fundamental right of all the peoples of the earth, as was recently widely agreed at Geneva, the dissemination of scientific information certainly cannot be excluded from the contention that this is mere lip service unless steps are taken to implement this fine assertion by those who alone can ensure a properly functioning periodical Press in Britain.

We make no pretence, therefore, that the use of small type and of other devices which alone have enabled us to present a paper of reasonably satisfying content, has allowed us to maintain our normal standard, much less to develop in the manner expected of a scientific journal of world repute. It cannot be done on a starvation diet of newsprint and oddities of paper in other forms. The best we can hope for, then, is a recognition that we have done our utmost, and the best we can now do is to prepare for more liberal times, turning our meagre resources, in the meantime, to such good account as conditions allow.

In our earlier commemorative issue we endeavoured to indicate the significance of the birth of *The Veterinary Record*, on July 14th, 1888, as revealed through the years, by tracing in historical perspective the march of events since 1828, which saw the beginnings of veterinary professional journalism in this country, and to assess the measure of our motion towards the achievement of the aim of our founder "to record the progress of the profession and, if possible, to assist its advance." Despite the intervention of the first World War, the importance of matters internal to the profession still predominated; on the impact of the second and yet greater conflict the pressure of exterior events presented a vital challenge to the profession and to the Association. In meeting this situation the function of this journal as the organ of the N.V.M.A. stood revealed as a great asset to both: indeed, the value of their mutual activities cannot be assessed without summarised reference to the programme immediately embarked upon by the "National" to assist the nation in overcoming those war-time nutritional problems which have, in fact, since become recognised as of world-wide concern.

Scarcely had our issue of August 5th, 1939, recorded "another successful Congress" (at Great Yarmouth) than the newly elected President announced in our columns that the placing of veterinary surgery amongst the "reserved occupations" presented a "golden opportunity." His reference then was to Animal Welfare Society collaboration through A.R.P. work, but ere long, under his leadership and that of other officers, this design was expanded to cover the great endeavour which was shortly instituted by the Association to survey the animal field with a view to enabling the profession to play its full and essential role in the national emergency. Our readers know how that programme has since been extended, through the Agricultural Programme Committee, whilst the Technical Development and Veterinary State Medicine Committees are hard at work enlisting the aid of veterinarians everywhere in the modern development of our art and science. Through the medium of its Overseas Committee the Association seeks to spread throughout the Empire its conception of a united profession desirous of working amicably with those in authority. It is to be deplored that the welcome universally accorded these approaches abroad has not been reflected in all quarters of the political field at home. The struggle to raise the status of members of the profession is one and indivisible, wherever fought, and whatever disagreements may have arisen with those who govern us, we can claim, on behalf of the Association we represent, that we have never offended with design and would prefer to acknowledge, rather than maintain or seek to vindicate, any erroneous course.

While, in William Hunting's words, "we do not wish to drift merely into an organ of veterinary politics," it becomes increasingly evident that this journal has an important political function and that events have tended to throw that function into the foreground. It is in this sphere, above all, that criticism must be untrammelled and the right maintained, alike for the Association, for its journal and for the individual reader, both to exercise independent judgment and to give expression thereto.

A further vitally important feature of the period, to the salutary effect of which our pages repeatedly have borne witness, has been the vigorous pursuit by the N.V.M.A. of a policy of promotion of contact with influential bodies in collateral spheres, thereby both acquiring and imparting strength and knowledge.

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an animal in respect of trespass, dangerous things, negligence and nuisance. Different considerations apply in each tort; the evidence to support an action and the defences applicable all differ. Circumstances can be visualised in which an action for trespass, dangerous things and negligence may all be maintainable. Keeping animals therefore may be a hazardous occupation. The principal considerations which will apply in bringing an action are—which tort can most easily be established and which will secure the heaviest damages.

Liability for animals presents a most interesting field of study, but it must be acknowledged that the state of the law is far from satisfactory and sooner or later amending legislation will be demanded.

Viewed as the mouthpiece of the Association, success for the *Record* can only reside in the extent to which, week by week, it is alive with compelling interest in promoting the highest ideals of the organisation it serves, assisting it, in close liaison with the Royal College, to keep the rank and file of the profession concerned for the effective management of its affairs. To this end, primarily by means of our Supplement, members are supplied with a record of the Association's work and the deliberations of its many committees, whose task it is to interpret in action the rightful aspirations of a professional body, bent on progress and service.

All the work of the Association, including the acquirement of *The Veterinary Record*, started without any impressive equipment other than an inspired concern to meet a professional need, and, as our pages reveal, now more liberally than ever before does this sphere afford the individual the opportunity to apply his experience in practical and fruitful ways. Numbers of men and women have passed through and dwelt in its fellowship, and the record of their work constitutes that part of our history in which we have the greatest cause for pride. It has been our privilege to seek to uphold them in their ideals and to strengthen them in their labours.

Nevertheless, we feel profoundly that it would be a grave disservice to the *Record* and unacceptable to our readers, if any factors in the life of the Association were allowed at any time to over-ride William Hunting's conception of the primary function of his journal as the medium for the provision of material of interest and value to the practitioner. In his editorial in our inaugural number, the appearance of which we commemorate to-day, William Hunting did something more than issue his immortal appeal to his colleagues and their successors in practice, to give permanent value to their skill by recording their observations. He gave also a message to his successors in the editorial chair which, though less well known, is of at least equal importance now that the responsibility for that office is vested more widely. In this passage he showed clearly where he desired to lay the emphasis, as regards the purpose of his new creation: "We shall publish articles and essays on scientific matters but, firmly believing that the science of medicine derives even more benefit from the inductive than the deductive method, we shall spare no effort in the attempt to extract from practitioners clinical reports of all their most interesting and instructive cases."

The fulfilment of our Founder's main object in bringing to birth *The Veterinary Record* thus stands revealed as a mutual task. While the Editor and his committee can be charged by the Association with the duty of issuing a journal presenting material of a purely scientific, political, or day-to-day type, only the practitioner can enable us to maintain the paper as a living memorial to William Hunting, true to his aspirations and to the clinical tradition he created, as we enter on another decade.

Weekly Wisdom

With public sentiment, nothing can fail; without it, nothing can succeed. Consequently, he who moulds public sentiment goes deeper that he who enacts statutes or pronounces decisions. He makes statutes and decisions possible or impossible to be executed.—Abraham Lincoln.

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Maidenhead Town Council have authorised the Town Clerk to take steps to ensure that all milk sold in Maidenhead is either tuberculin-tested or pasteurised.

CLINICAL COMMUNICATION

Gingivitis in Canine Practice

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According to a standard work on human oral pathology (Thoma, 1941), gingivitis may be of local or systemic origin. "Therefore," it states, "it is necessary that one be always on guard, because what may appear on the surface as a local condition may turn out to be an early symptom of some general disturbance, such as unrecognised vitamin deficiency, blood dyscrasia, or diabetes." In the human subject again, according to that work, gingivitis is usually classified according to its clinical manifestations into (1) marginal gingivitis, (2) hypertrophic gingivitis, and (3) ulcerative gingivitis, or Vincent's infection.

The pathogenesis of these forms varies somewhat. In the commonest form, namely, marginal gingivitis, the inflammation may be purely local in origin, being caused by some adjacent irritant. General causes are—allergy, gastro-intestinal disturbances, endocrine disorders, food deficiency, diabetes, and dysmenorrhoea. In this form, the gums are usually red and swollen and tend to bleed when pressure is applied. The condition may be general or it may be confined to single areas. It is very important to diagnose this type early, since, if left untreated, marginal periodontitis probably will result. In hypertrophic gingivitis there is marked hyperplasia of the gums. Local causes are oral sepsis, mouth breathing, and food impaction. Systemic causes are leucaemia, scurvy, and diabetes. Pregnancy in some women causes general hypertrophy of the gum, occurring towards the middle of pregnancy and lasting, usually, until a month or two after delivery. A form of hereditary elephantiasis of the gum is also known which generally appears during the change from the first to the second dentition. In hypertrophic gingivitis, the marginal gums appear swollen and the interdental papillae are generally affected more than the rest of the gums. Ulcerative gingivitis or Vincent's infection differs considerably from the other types. While infection takes place in all forms of gingivitis, Vincent's infection is the only one that is thought to be caused by a group of specific micro-organisms, principally a spirillum, and a fusiform bacillus.

Veterinary textbooks on the whole are extremely disappointing in their manner of treating this group of affections and there seems to be very little in the recent periodical literature that is informative so far as concerns the dog, revised and treated, as the subject ought now to be, in the light of the enormous advance in knowledge in recent years. The best writings on this subject still remain the older ones which treat of the subject from the more purely clinical point of view, such as those of the late Henry Gray (1923) which have been authoritatively quoted by Colyer (1931) in his learned and illuminating work on the comparative oral pathology of man and animals.

It is clear, therefore, that an immense field for research awaits exploration in connection with the oral diseases of the dog, of which gingivitis is a common and little understood condition. Advance in knowledge upon hereditary influences, the avitaminosis and other nutritional disturbances, and endocrine disorders, and even, very conspicuously, according to some authors, such as Broderick (1936), psychological upsets, have singly or, more often, collectively, contributed to a better understanding of oral pathology, even though the precise origin of several oral affections still remains somewhat obscure. It cannot fail to attract the notice of the canine practitioner that, during puppyhood and adolescence, dogs as now kept in households are subject to disturbances similar to those affecting children, in which the deplorable state of the teeth and adjacent tissues has come to be one of the most distressing problems of civilisation.

Specifically, it has been known for some time, particularly from the researches of M. Mellanby (1930), that a deficiency of vitamin A, or its pro-vitamin, carotene, can produce hyperplasia of the gingival tissue predisposing the tissue to diseases of various types. Dogs deficient in vitamin A alone and in both vitamins A and D, showed hypertrophy of the gingival margin with the crevicular epithelium hypertrophied and irregular, with small processes due to proliferation extending into the corium, while dogs on normal diet showed thin regular crevicular epithelium. In the dogs with defective epithelial protection, infection sets in readily, causing cell infiltration in the underlying connective tissue, and sometimes abscess formation and resorption of the alveolar bone. This did not occur in dogs receiving a liberal supply of vitamins A and D.

Deficiency in ascorbic acid (vitamin C) does not seem to have been proved to be the cause of mouth lesions in the dog, as it does so readily in other species such as the guinea-pig.

It is now well known that deficiencies of vitamins of the B complex, namely, thiamin (B_1), nicotinic acid and riboflavin, may possibly cause mouth lesions. For example, nicotinic acid deficiency has been recognised as the cause of the disease, "black tongue," in dogs, and deficiency in the "pellagra-preventive" (P.P.) factor, riboflavin, very probably, also sometimes gives rise to sore mouth, simulating pellagrous lesions in the human subject.

In the latter, gingivitis is also an early and distressing symptom of pernicious anaemia and is amenable to the specific treatment for this condition. It is quite likely that some of the anaemias commonly seen in dogs, especially puppies, may be associated with gingivitis of a similar nature.

Two forms of gingivitis have come under my notice in the course of canine practice at Cairo, the first of which does not appear to be separately dealt with in the standard works on human oral pathology. This is a form of gingivitis which affects puppies during the change from the temporary to the permanent dentition. In the great majority of dogs this change takes place entirely unnoticed. It is a physiological change which has for its object the provision of the animal with a masticatory apparatus that will enable it to chew the kind of food which it is destined to consume as an adult and also enable it to protect itself against enemies and attack its natural prey.

When, as is clear from the writings especially of Colyer and Broderick, the purposes for which deciduation was intended are not functionally fulfilled, through the unnatural conditions in which the carnivore is maintained in conditions of excessive domestication, teething troubles are almost certain to set in both at the time of the actual deciduation and later on in the adult when the permanent teeth have been fully erupted. Broderick, in particular, has stressed the observation that dogs denied access to raw flesh in the manner in which it is available to their wild progenitors, are prone to periodontal disease, even when the same raw meat is supplied to the dogs in the form of raw minced meat.

Gingivitis in Adult Dogs.—As has been indicated in the trend of the remarks in the above introduction, dogs that have been pampered, fed on soft food, and given insufficient exercise, are prone to dental affections and these usually take the form of periodontal troubles. True caries, as Colyer has indicated in his data, is relatively very rare in the dog and, as Broderick has stressed, pyorrhoea and caries appear to be naturally antithetic or mutually exclusive conditions, while gingivitis is a form of oral affection that is not uncommonly seen in adult dogs living an unnatural and luxurious existence. It may appear alone or accompanied with pyorrhoea alveolaris, and may be followed, after its early stages, with profound systemic disturbance.

The following is an illustrative case.

Subject.—Griffon bitch, eight years old. According to the owner, she had emitted an increasingly offensive odour from the mouth for some months, and on examination there was observed a very advanced ulcerative gingivitis with some pyorrhoea. There were erosions and sloughing of the gums in several places. The gums, on the whole, were much swollen and exceedingly painful, and bled on gentle touch. Some pus exuded from the tooth sockets and there were signs of suppurative periodontosis. There was a highly foetid odour from the mouth. Salivation was profuse, appetite very poor, and bowels were very irregular in action, obstinate constipation frequently alternating with fluid diarrhoea. The temperature was continuously raised between 102·5° and 103° F. Treatment was begun by extracting all diseased and loose teeth and removal of tartar and rinsing the mouth with warm antiseptic solutions.

Talbot's dressing (see Burchard and Inglis, 1921, p. 614) (comprising zinc iodide 15 g., iodine 25 g., glycerine 50 g., water 10 g.) was then applied locally for the gingival ulcers on cotton wool wound on an applicator and dried after each painting. Following this treatment, the condition of the mouth improved and the foul odour almost disappeared. The general condition of the animal, however, did not improve in spite of apparent temporary improvement at the beginning of the treatment. Symptoms of gastro-intestinal disturbance became more severe. Afterwards the animal exhibited epileptic fits which, to begin with, were slight and occurring at prolonged intervals, but they progressively became increased in intensity, duration and frequency, leading to such severe exhaustion of the animal that eventually it had to be destroyed.

The next case, in a nine-year-old Pomeranian, presented the same local symptoms and was treated topically just as in the preceding case, and it recovered rapidly.

Acknowledgment.—I would like to acknowledge the considerable help given to me by Dr. J. T. Edwards, late Honorary Dean of this Faculty, in preparing this communication for publication.

Since the draft of this communication was submitted for publication, a comprehensive review has come to notice on the influence of diet on parodontal disease by J. D. King, whose own researches have contributed greatly to our knowledge upon the subject. It can be commended to veterinary readers in particular because a very large, indeed perhaps a major, proportion of the experimental research reviewed, which is indicated in a list of 287 references to the literature, has been performed on dogs. King's conclusion to his discussion of the facts as they now stand revealed merits quotation: ". . . while considerable advances have been made in our knowledge of diseases of the parodontal tissues, there is far too much complacency and a tendency to disregard the many unsolved problems. Extensive investigation is still necessary before elimination and control of these lesions can be placed on a firm scientific basis. Nutritional and physical defects of the diet, study of the interaction of which would be of great value, have complementary causative roles and the former disputes between the protagonists of each should now be settled amicably. In this respect, animal experiments have shown that retention of food debris and formation of tartar about the necks of the teeth, are encouraged by ill-health and defective nutrition, a pertinent example of local hygienic factors resulting from, and then accentuating, lesions of primarily systemic origin. Many features of the aetiology and pathology of the various forms of parodontal disease are little understood. The influences of the oral microflora, of phosphatases, of proteolytic enzymes, and of tissue enzymes responsible for intracellular nutrition and respiration, are at present completely unknown and their possible relationship to constituents of the diet remains a matter for mere speculation. Only the solution of these and other problems will bring to an end one of the most widespread and ravaging diseases of the human race."

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REVIEWS

["14,000 Kilometres across the United States." By Telesfera Bonadonna. Cisalpino, Milan. 800 lire.]

This is, as its title suggests, a record of a journey through the U.S.A. undertaken by Professor Bonadonna. Ten thousand miles in five weeks is an achievement which shows a prodigious physical vitality, and the writing throughout shows evidence of a mind in keeping. The whole is a most lively and absorbing piece of scientific journalism. The picture of American agriculture presented in the first part of the book is comprehensive and of great interest to the English reader, giving an excellent conspectus of that vast industry. With this background, Professor Bonadonna describes his visits to various agricultural centres of research and teaching; his emphasis is throughout on artificial insemination, even at the great Beltsville Research Station, which cost $13,000,000 and employs 2,000 workers. American A.I. organisation and techniques do not appear to differ materially from ours. The descriptions tend to become rather repetitive, and Cornell is described only from the A.I. aspect with no mention of Williams.

Nevertheless, one would welcome an English translation of this work; it presents a vivid picture of contemporary livestock conditions in the U.S. And to introduce Professor Bonadonna to English readers would provide a stimulating experience.

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[Rheology in relation to Pharmacy and Medicine. By G. W. Scott Blair, M.A., D.Sc., F.R.I.C., F.Inst.P., of the National Institute for Research in Dairying, University of Reading. London: The Pharmaceutical Press, 17, Bloomsbury Square, W.C.1. Price 2s.]

This monograph is based on two special university lectures given at the request of the University of London. They should prove of interest to chemists and pharmacologists. The principal application of rheology to more purely veterinary matters appears to be in the realm of the physiology of digestion and excretion, more particularly of the ruminant. It is therefore a science of limited appeal to the generality of the veterinary profession.

ABSTRACTS

[An Immunological Study of *Pasteurella septica.* ROBERTS, R. S. (1947.) *J. comp. Path.* **57**. 261-278. (32 refs.).]

The author's object was to determine whether antigenic types exist within the species *P. septica.* The method adopted was to estimate the power of sera against killed strains of organisms to protect mice against infection with homologous and heterologous strains. Sera were prepared against 20 strains and tested in pairs in such a way that the passive protection conferred upon mice by each serum was related to that of the other 19 sera. In interpreting the results, allowance was made for differences of virulence between strains. The strains were found to fall into groups, I (5), II (12), III (2) and IV (1). There was some slight relationship between II, III and IV, while I was quite independent. This classification was supported by a number of cultural and biochemical differences. Fourteen other strains were tested by means of the 20 original sera. Nine were assigned to groups I (4), II (4), IV (1), while the remaining five could not be assigned to any of these groups. Sera against three strains (which had since been lost) indicated that the strains belonged to groups I, II and IV.

A. W. G.

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[Some Pharmacologic Aspects of Sulphaguanidine in Normal Chickens. BANKOWSKI, R. A. (1948.) *Amer. J. vet. Res.* **9**. 85.]

Sulphaguanidine is now frequently used in the chemotherapeutic treatment of caecal coccidiosis in chickens. It has been shown by other workers that this drug is readily absorbed from the intestinal tracts of ducks and turkeys, and the present work was undertaken to study absorption rate, maximum non-toxic doses, and the concentration in the blood and intestine of chickens following administration of varying amounts of the drug. The blood concentrations were determined by the photo-electric colorimeter method of Marshall and Bratton.

The rate of absorption, as indicated by the time required to reach the maximum concentration in the blood, was found to vary markedly in individual birds, and could not be correlated with the amount of the drug administered. The peak concentration in 77 per cent. of the chickens occurred within three and a half hours and the average peak concentration in the blood was found to vary in accordance with the size of the dose.

The rate of elimination from the blood was fairly rapid and uniform following single doses of 0·5, 1 and 2 grammes per kg. body weight, and was complete in 58 hours. Birds given larger doses (3 grammes per kg.), however, showed slow and irregular elimination and marked toxic symptoms developed. Milder symptoms were shown by the birds receiving 2 grammes per kg., and none at the 0·5 gramme per kg. level.

The average concentration in the intestine was lowest in the anterior half, higher in the posterior half and greatest in the caeca. Fluctuations in the blood and intestinal concentrations were associated with feeding habits. There was no evidence of acetylation of sulphaguanidine in the chicken.

J. G. C.

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[The Effect of Sulphaquinoxaline Medication in *E. tenella* **Infection in Chickens.** PETERSON, E. H. (1948.) *Amer. J. vet. Res.* **9**. 77.]

Sulphaquinoxaline is one of the more recent sulphonamide drugs to be studied therapeutically. Originally shown to be effective prophylactically against chronic fowl cholera, and later against caecal coccidiosis, its toxicity for the chicken, the results of tests against caecal coccidiosis, and experiments to determine the most effective therapeutic dose and mode of administration, are dealt with in this article. 0·1 per cent. fed in the mash to newly hatched cockerels for periods up to 30 days temporarily depressed the rate of growth, but did not cause undue mortality. 0·3 per cent., on the other hand, severely depressed growth rate, caused a heavy mortality and left the survivors stunted. It was noted that withdrawal of the drug at both levels after ten days resulted in a prompt return to normal development.

Experiments have shown that the most effective dose in the treatment of four to six weeks old chickens heavily infected with *E. tenella* is in the region of two grains per lb. body weight per day, for a two to three days period of medication. These figures are for direct administration into the crop of the drug dissolved in sodium carbonate solution. When given in the mash, a 0·1 per cent. ratio is recommended, or 0·04 per cent. in the drinking water. In both cases the optimum treatment time is three days. The best results were obtained when the drug was administered in the drinking water.

The author points out that these levels of effective drug intake are far below those for any other sulphonamide drug used in the treatment of coccidiosis, and that sulphaquinoxaline may therefore find an eminent position amongst products used in poultry disease control.

J. G. C.

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[The Gross and Micropathology of Sulphaquinoxaline Poisoning in Chickens. DELAPHANE, J. P., and MILLIFF, J. H. (1948.) *Amer. J. vet. Res.* **9**. 92.]

Sulphaquinoxaline fed in the mash at the rate of 0·05 per cent. to Rhode Island Red laying pullets resulted in toxic symptoms and death, when continued for a period of eight to ten days. Intermittent adminstration prevented toxic effects from developing. The toxic effects were characterised by a decline in egg production, weakness and apparent anaemia, followed by death. *Post-mortem* examination of birds which had succumbed after typical toxic symptoms, showed subcutaneous haemorrhages in the legs and comb, splenic lesions grossly resembling myeloid leucosis, greyish white miliary nodules scattered throughout the liver, similar nodules and petechial haemorrhages in the kidneys, and occasional nodules in the heart and lungs. Histological examination of these organs showed the nodules to exhibit caseating necrosis, or connective tissue proliferation, leucocytic infiltration, giant cells, and in the case of kidneys, cloudy swelling of the proximal convulated tubules.

J. G. C.

NOTES AND NEWS

Diary of Events

July 14th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1.

July 15th.—Social Outing of Dumfries and Galloway V.M.A., George Hotel, Penrith. 11.45 a.m.

July 16th.—Summer Meeting of Mid-West Division, at Shrubbery Hotel, Ilminster, 2 p.m.

July 16th.—Meeting of the North Wales Division, N.V.M.A., at Bettws-y-Coed (Memorial Hall), 2 p.m.

July 17th.—General Meeting of Association of State Veterinary Officers at Royal Veterinary College, Camden Town, N.W.1, 2.15 p.m. Council Meeting, 10.30 a.m.

July 22nd.—Meeting of the North of England Division, N.V.M.A., at Shincliffe (Artificial Insemination Centre), 2.30 p.m.

July 23rd.—Annual Meeting of the Sussex Division, N.V.M.A., at Brighton (Old Ship Hotel), 11.30 a.m.

July 23rd.—Second Ordinary General Meeting of A.V.T. and R.W. (Southern Region) at Royal Veterinary College, Camden Town, N.W.1, 2 p.m.

Sept. 8th to 15th (inclusive).—N.V.M.A. Congress at Southport.

Sept. 11th.—13th Annual Meeting and Dinner of the Royal (Dick) Veterinary College, Alumnus Association at Southport (Prince of Wales Hotel), 7.30 p.m.

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PERSONAL

Mr. Thos. Dalling Appointed Chief Veterinary Officer

On Monday last announcement was made by the Ministry of Agriculture and Fisheries that Mr. T. Dalling, M.A., M.R.C.V.S., Director of the Ministry's Veterinary Laboratory, New Haw, Weybridge, has been appointed Chief Veterinary Officer to the Ministry from August 21st, 1948, on the retirement of Sir Daniel Cabot, M.R.C.V.S., who reached the age of 60 on June 16th, 1948.

Sir Daniel Cabot's services will be retained part-time in a temporary capacity in connection with certain international veterinary organisations.

The announcement of Mr. Dalling's appointment as head of the Ministry's Veterinary Service will be acclaimed not only by his colleagues in the service, but by the profession as a whole. His distinguished career has been, as it were, a natural progression, evolving both from the untiring application of his talents to his duties and an unassuming and kindly but quietly forceful personality. All will wish him well in his tenure of a key position at so vital a time in the development of veterinary public health.

At the age of 44 years Thomas Dalling, after a varied experience in many branches of veterinary science and practice was, as recorded in the biography published in our issue of February 20th of that year, in 1937 elected into the Professorship of Animal Pathology at Cambridge. He took up his appointment as Director of the Ministry's Laboratory in January, 1942.

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Dr. J. T. Edwards Honoured

His Majesty King Farouk I of Egypt has graciously been pleased to award to Dr. James Thomas Edwards the Order of the Nile [Third Class] and the conferment of this high honour, which carries with it the title "Bey," will be warmly welcomed by his colleagues in the profession.

It will be recalled that Dr. Edwards was invited in person by the Egyptian Government to proceed to Egypt early in 1946 as an expert adviser on veterinary education.

Immediately after his arrival, that country was confronted with a national calamity in the form of cattle plague, and the methods which he then devised are still being used successfully. It is primarily in recognition of his services in this connection to the Ministry of Agriculture that the award has been made.

As recorded earlier in our columns, His Majesty honoured Dr. Edwards with audiences, when he expressed high appreciation alike of his work for the advancement of veterinary education in Egypt, under the University, in very difficult conditions, and for the assistance rendered the rising veterinary profession there to stand on its own feet.

We cannot but look upon it as a great tribute to the British veterinary profession that it was one of our own distinguished members whose services were thus sought, and this notable recognition of the success of Dr. Edwards' mission is a source of gratification to us all.

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The Birthday Honours.—In the recent honours list Mr. John R. Stratford, M.R.C.V.S., a staunch member of the North of Ireland Veterinary Medical Association and manager of the City Abattoir, Belfast, received the distinction of Member of the British Empire.

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Marriage.—Findlay—Jackson.—On June 23rd, 1948, Iain, elder son of Mrs and the late Mr. I. M. Findlay, of Glenbrae, Bridge of Allan, Stirling, to Mary, only daughter of Mr. and Mrs. J. Jackson, of Red House, Skirwith, Penrith, Cumberland.

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On Wednesday last, the second day of the Royal Show at York, the members of the Farmers' Club made a presentation to Mr. F. J. Levick, for 26 years Secretary of the Club.

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R.C.V.S. OBITUARY

Green, Walter George, Capt., late R.A.V.C., The Laurels, Long Crendon, Aylesbury, Bucks. Graduated London, May 21st, 1898. Died June 22nd, 1948.

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National Insurance

Members are reminded that the provisions of the National Insurance Act of 1946 came into force on Monday last, and that the following principal weekly rates of contribution must now be paid:—

	Men	Women
	s. d.	s. d.
Employed Persons	9 1	7 1
Self-employed Persons	6 2	5 1
Non-employed Persons	4 8	3 8

The employer has to contribute 4s. 2d. a week for a man, or 3s. 3d. for a woman; the employee to pay the remainder.

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Breaches of the Penicillin Act

Where a breach of the Penicillin Act comes to the notice of a member of the N.V.M.A., he or she should report full details to the General Secretary, 36, Gordon Square, London, W.C.1, who will contact the Pharmaceutical Society; that body has power to enforce the provisions of the Act.

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THE ANIMAL HEALTH TRUST

Equine Research Station's Progress Report

The first Progress Report of the Equine Research Station of the Animal Health Trust has just been published. Veterinary surgeons who have already subscribed to the Trust will receive their copies by post.

This report has been prepared for the information of subscribers to the Equine Research Fund, and is worded appropriately. Much of the subject matter has already been dealt with, in technical detail, by Dr. J. A. Burkhardt in his paper to the Lincolnshire and District V.M.A. published in *The Veterinary Record* of May 22nd last.

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"This Week's Good Cause" Appeal.—To-morrow, at 8.25 p.m., over all B.B.C. Regional Stations, Dr. W. R. Wooldridge, M.Sc., M.R.C.V.S., the Scientific Director, will plead the cause of the Animal Health Trust, and in the five minutes at his disposal he will endeavour to give a picture of the work of the Trust and the urgent need for its operation, and will make an appeal for funds.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Swine Fever:

Cornwall.—Treworral Farm, Mawnan Smith, Falmouth (June 30th).

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ANOTHER CASE OF RABIES

The Ministry of Agriculture and Fisheries reports a further case of rabies in an imported dog which was still in the quarantine kennels where it had been placed on its arrival in this country from Burma last January. The animal, a Labrador bitch, appeared to be in normal health when it was landed here. The first symptoms of rabies were noticed on June 14th and the dog died the next day. A *post-mortem* examination revealed that the bitch was affected with rabies.

This is the sixth case of rabies in an imported dog since November, 1946.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents are requested to write as briefly as possible

TUBERCULOSIS IN THE DOG

Sir,—I have been interested in the case recorded by Mr. P. L. Builder in your issue of June 26th, and thus wish to recall the one case seen by me while engaged on locum tenens work at the Brown Institution, Wandsworth, S.W., now nearly 40 years ago.

The patient was a collie—age not remembered—whose owner complained of the dog losing flesh in spite of being well fed, and affected with cough and shortness of breath. Examination of the chest disclosed pleurisy on both sides and I can recollect that the cough was not one of pharyngitis, laryngitis or the asthmatic type, neither was there any history of a delayed recovery from distemper, or any previous acute affection of the chest. On these grounds tuberculosis was suspected. When this pronouncement was made, the owner—a man of under 30 years and a straightforward type—remarked: "I have been to the Brompton Hospital recently and they tell me I have got that disease." On my part it was not easy to make any comment on this misfortune, but I felt rather convinced that his dog, too, was a victim. I advised the owner to have the animal destroyed. The *post-mortem* examination revealed tuberculosis of both lungs, related glands and some nodular pleurisy. No tubercle was found in any other organ.

It requires no stretch of reasoning to conclude that the dog derived infection from one known human case in that household. While tuberculosis in the dog must be rare, the risk of infection in house dogs where tuberculosis is present cannot lightly be passed over. In the public health section of our work, for those engaged specially in canine practice the matter remains of some importance.

Yours faithfully,

Ballyconnell, Co. Cavan. P. A. M'Corry.

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MEASUREMENT OF HORSES AND PONIES

Sir,—I read with interest Mr. Cochrane-Dvet's comments on the above published in the *Record* of June 19th. I agree that the present methods are most unsatisfactory and lead to much argument and even ill-feeling.

To be accurate one would need to have a wooden pony standing on a cement surface, and have two plumb lines down adjacent sides of the upright of the measuring stick. Then again that little crossbar must be at right angles to the upright bar and the spirit level must not be sluggish or loose.

When visiting our local shows we are often asked to measure ponies. How can we get the level surface? How much are we to allow for grass or moist soil during wet weather? We cannot carry a measuring stick with a huge base on it, which is necessary if the stick is to be kept perpendicular. (Both antero-posterior and lateral planes have to be taken into consideration.) A nervous pony will not stand with its fore legs perpendicular long enough for us to go into all these details.

To keep the ordinary walking-stick type of measuring stick perpendicular in all directions, the spirit level correct, the cross-bar just on the pony's withers and the pony quiet in the proper position is impossible. So what are we to do?

I suggest that some other method be used, such as the measurement of the distance from the point of the elbow (Olecranon Process) to the angle of flexion of the carpus.

Yours faithfully,

Annagh Lodge, G. H. McCrea.
Fivemiletown, Co. Tyrone.
June 26th, 1948.

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PREVENTION OF TERROR IN SLAUGHTER

Sir,—Mr. Roderick Macgregor in his very lucid contribution to your issue of June 19th draws attention to a question which should be familiar to most of those concerned with livestock.

My own more limited experience has been entirely in agreement with his views. Many animals will show some degree of anxiety when one of their number with which they have been mixing for some time is being handled: I have seen this even amongst cattle, but it cannot be confused with mortal fear.

As Mr. Macgregor points out, the first consideration is to reduce noise and bustle where animals are being handled; under quiet conditions it does not matter greatly how much they are able to see and smell.

There are undoubtedly many well-intentioned people, including Members of Parliament, who do not agree with this, but whilst respecting their intentions, one cannot help feeling that by poorly informed contributions on this point they are obscuring the real issue and working against the cause which they and all of us would like to assist.

Yours faithfully,

Maulldan, R. W. Crowther.
Ducks Hill Road,
Northwood, Middlesex.
June 30th, 1948.

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THE VETERINARY SURGEONS BILL

Sir,—I would like to add my support to those of our profession who have written opposing the use of the title "Veterinary Practitioner" for quacks. It is, to say the least, an insult of the first order to our century-old profession. Much has been said about the Bill raising the status of our profession, but surely the use of the words "Veterinary Practitioner" for quacks will with one stroke counterbalance anything the Bill may do to raise our status. (Personally I am of the opinion that among the public generally our status is not very low.) I think Mr. J. F. D. Tutt sums the whole matter up by his quotation.

I have written to add my support, as one who is overseas, so that the profession may know that this Bill is watched with anxious eyes outside the country as well as at home.

Yours faithfully,

A. H. A. Hamilton.
Ilorin, Nigeria. *Veterinary Officer.*
June 26th, 1948.

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Sir,—As a reader of your splendid journal, I dare to express an opinion concerning the application of the title "Veterinary Practitioner" to unqualified persons.

In this land of mine "Vétérinaire" may be used either as a substantive, to designate qualified persons solely—it being unlawful for anyone to have himself designated by it unless he received the "diploma" of Vétérinaire or since 1928 of Docteur-Vétérinaire—or as an adjective, applying either to people or to things. In the latter instance the use of the adjective is unrestricted: Journal Vétérinaire, Produit Vétérinaire, Veterinary Congress. In the first instance, when it applies to people, the law forbids an unqualified person to designate his own activities with such terms as Praticien Vétérinaire, Expert Vétérinaire.

The French veterinary surgeons admire greatly the achievements in many directions of their British colleagues and consider with pride reflecting on themselves the ethics of the profession in the United Kingdom. It will be a shock to them to learn that Veterinary Practitioner does not designate forcibly one they honour.

From this point of view, which prompts me to write, the application of Veterinary Practitioner to unqualified persons has an international implication: Many scientific researchers who have attained "mondial" reputation (Emmanuel Leclainche, Camille Guérin) were Veterinary Practitioners at the beginning of their careers. In September, 1949, when they will be present at the International Veterinary Congress in London, will it not be embarrassing to explain to them, and to many others, that there are two sorts of persons who can bear the title which designates so many of their friends, and which at a time was theirs. Within the Western Europe of to-morrow it will bring a confusion if the same title does not designate the same kind of people.

It is a strange idea to sacrifice for a few who will pass away; to deteriorate the meaning of words to the status of which a whole profession belonging to the intellectual élite endeavours unceasingly to give an upward trend.

How should they be named? The English language is rich enough to find terms appropriate and avoiding the word "Veterinary," and if no agreement can be reached let them name themselves as they please but with nothing recognised by law.

I am very bold to write about a subject which many may consider strictly an internal affair—and dear Mr. Editor, if this is also your opinion, simply destroy my letter, please.

Yours faithfully,

18, Rue Marbeau, Paris 16e. P. Blaizot.
June 23rd, 1948.

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Sir,—The passage of the Veterinary Surgeons Bill without important changes seems to be assured. The main objection of the profession is undoubtedly the granting of the title "Veterinary Practitioner" to the unqualified.

At very least this title will lead to some confusion, since the majority of our qualified members are already generally known as practitioners. Why this title was chosen for the unqualified is difficult to understand, since it seems to be most undesirable.

Now that the unqualified are to be called Practitioners, it appears to be only right that the qualified should have some other designation. There is a way by which the qualified could be clearly designated, and that is by the institution of a degree of Doctor of Veterinary Medicine (D.V.M.) in addition to, or in conjunction with, the M.R.C.V.S., or as a university degree.

I would certainly appreciate hearing the pros and cons of this subject. May I respectfully suggest that the R.C.V.S. and N.V.M.A. give the matter their attention. As a first step, could not the opinion of the profession be ascertained?

The D.V.M. is the recognised veterinary qualification in the United States. The course for the degree extends over six years, and the degree is held in high esteem.

From the practitioner's point of view the D.V.M. seems to be a more descriptive title than, say, a Bachelor in Veterinary Science, which is apt to be confused in the eyes of laymen and others with a B.Sc. in some other field, which is not such a high qualification. Degrees in Science and Philosophy in Veterinary Medicine are of course essential additional qualifications.

Yours faithfully,

F. H. Manley,
Professor, Depts. Bacteriology and Pathology, School of Veterinary Medicine.
Alabama Polytechnic Institute,
Auburn, Alabama.
June 24th, 1948.

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Sir,—Several members of the profession have advocated that we become known as "Doctors" to differentiate us from the "quacks." Personally I prefer to known as a "Vet." and not as a Doctor. Every faculty of learning has a Doctor's degree—the Church, the Law, Science, Music and Art—but there is only one class of people known as Vets. and we are they. No one will ever steal that title from us, therefore let us keep it and be proud of it. It is a very old title and worth honouring.

Yours faithfully,

Eastwick House, Evesham, Worcs. G. C. Lancaster.
July 4th, 1948.